IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant	:	Pierre Guillaume Raverdy	
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APPEAL BRIEF

Dear Sir:

Applicant submits, the following Appeal Brief pursuant to 37 C.F.R. § 41.37 for consideration by the Board of Patent Appeals and Interferences. Please charge any additional fees or credit any overpayment to our deposit Account No. 02-2666.

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I. REAL PARTY IN INTEREST

The real party in interest is the assignee, Sony Corporation and Sony Electronics Inc.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to the appellants, the appellants' legal representative, or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-40 of the present application are pending. The Applicant hereby appeals the rejection of claims 1-40.

IV. STATUS OF AMENDMENTS

On March 31, 2009, Applicant filed a response to an Office Action dated January 2, 2009. The Examiner issued a Final Office Action on June 12, 2009. On September 11, 2009, the Applicant filed a Notice of Appeal in response to the Final Office Action. No amendments have been filed subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

1. Independent claims 1, 13, 25, and 37:

Independent claim 1 recites: "An apparatus comprising: a frame module (Fig. 2, frame module 210; paragraph [033], line 1) to process a frame containing information regarding a local node (Fig. 1, e.g., 124; paragraph [033], lines 4-5) in a first network (Fig. 1, e.g., 110_1; paragraph [022], lines 1-2), the information including discovery information and network state information (paragraph [030], lines 1-2; paragraph [055], lines 1-2), the discovery information being represented in a common description (paragraph [034], lines 2-4; paragraph [061], lines 2-9), the network state information including at least one of network configuration, network status, and network history (paragraph [055], lines 2-7); an information module (Fig. 2, information module 220; paragraph [034], line 1) coupled to

the frame module to manage the information (paragraph [034], line 1); and a communication module (Fig. 2, communication module 230; paragraph [035], lines 1-2) coupled to the frame module and the information module to manage communication between the local node and a remote node (Fig. 1, e.g., 136; paragraph [033], lines 4-5) in a second network (Fig. 1, e.g., 110_2; paragraph [022], lines 1-2) using the information (paragraph [035], lines 2-3)."

Independent claim 13 recites: "A method comprising: processing a frame containing information (paragraph [033], line 1) regarding a local node (Fig. 1, e.g., 124; paragraph [033], lines 4-5) in a first network (Fig. 1, e.g., 110_1; paragraph [022], lines 1-2), the information including discovery information and network state information (paragraph [030], lines 1-2; paragraph [055], lines 1-2), the discovery information being represented in a common description (paragraph [034], lines 2-4; paragraph [061], lines 2-9), the network state information including at least one of network configuration, network status, and network history (paragraph [055], lines 2-7); managing the information (paragraph [034], line 1); and managing communication between the local node and a remote node (Fig. 1, e.g., 136; paragraph [033], lines 4-5) in a second network (Fig. 1, e.g., 110_2; paragraph [022], lines 1-2) using the information (paragraph [035], lines 2-3)."

Independent claim 25 recites: "An article of manufacture (paragraph [0104], lines 19-20) comprising: a machine-accessible storage medium (paragraph [0104], lines 9-11, lines 19-20) including data that, when accessed by a machine, causes the machine to perform operations (paragraph [0104], lines 20-25) comprising: processing a frame containing information (paragraph [033], line 1) regarding a local node (Fig. 1, e.g., 124; paragraph [033], lines 4-5) in a first network (Fig. 1, e.g., 110_1; paragraph [022], lines 1-2), the information including discovery information and network state information (paragraph [030], lines 1-2; paragraph [055], lines 1-2), the discovery information being represented in a common description (paragraph [034], lines 2-4; paragraph [061], lines 2-9), the network state information including at least one of network configuration, network status, and network history (paragraph [055], lines 2-7); managing the information (paragraph [034], line 1); and managing communication between the local node and a remote node (Fig. 1, e.g., 136; paragraph [033], lines 4-5) in a second network (Fig. 1, e.g., 110_2; paragraph [022], lines 1-2) using the information (paragraph [035], lines 2-3)."

Independent claim 37 recites: "An apparatus comprising: means for processing (Fig. 2, frame module 210; paragraph [033], line 1) a frame containing information regarding a local node (Fig. 1, e.g., 124; paragraph [033], lines 4-5) in a first network (Fig. 1, e.g., 110_1; paragraph [022], lines 1-2), the information including discovery information and network state information (paragraph [030], lines 1-2; paragraph [055], lines 1-2), the discovery information being represented in a common description (paragraph [034], lines 2-4; paragraph [061], lines 2-9), the network state information including at least one of network configuration, network status, and network history (paragraph [055], lines 2-7); means for managing (Fig. 2, information module 220; paragraph [034], line 1) the information (paragraph [034], line 1); and means for managing communication (Fig. 2, communication module 230; paragraph [035], lines 1-2) between the local node and a remote node (Fig. 1, e.g., 136; paragraph [033], lines 4-5) in a second network (Fig. 1, e.g., 110_2; paragraph [022], lines 1-2) using the information (paragraph [035], lines 2-3)."

2. Dependent claims 2-12, 14-24, 26-36, and 38-40:

Dependent claims 2, 14, 26, and 38 recite in essence: "the frame module comprises: a frame builder to build the frame containing the information (Fig. 3A, frame builder 310; paragraph [037], lines 1-2); a frame transmitter coupled to the frame builder to transmit the frame to another local node in the first network or the remote node in the second network (Fig. 3A, frame transmitter 320; paragraph [038], lines 1-8); a frame poller coupled to the frame transmitter to provide a polling frame requesting for information of the remote node (Fig. 3A, frame poller 330; paragraph [042], lines 1-2); and a frame receiver to receive another frame from another local node in the first network or to receive a remote frame from the remote node (Fig. 3A, frame receiver 340; paragraph [043], lines 1-2)."

Dependent claims 3, 15, and 27 recite in essence: "the frame receiver forwards the received remote frame to the communication module if the received remote frame is related to the network communication (paragraph [043], lines 2-3; paragraph [046], lines 1-2)."

Dependent claims 4, 16, and 28 recite in essence: "the frame receiver forwards the received remote frame to the information module of the local node, to another local node in the first network, or to another remote node if the received remote frame is related to information exchange and meets an acceptance condition (paragraph [046], lines 3-7)."

Dependent claims 5, 17, and 29 recite in essence: "the acceptance condition is based on a forwarding number and propagation parameters including a propagation list and a propagation type, the forwarding number and the propagation type being contained in the frame (paragraph [047], lines 1-2; paragraph [048], lines 1-4)."

Dependent claims 6, 18, 30, and 39 recite in essence: "the information module comprises: a collector to collect the information (Fig. 4A, collector 410; paragraph [055], line 1); a translator coupled to the collector to translate the discovery information into the common description (Fig. 4A, translator 420; paragraph [061], lines 1-2); a node selector coupled to the collector to determine if the local node participates in the communication based on the network state information of the local node and other network state information from another local node in the first network (Fig. 4A, node selector 440; paragraph [063], lines 1-3); and a synchronizer to synchronize the collected information with other information from other local nodes in the first network (Fig. 4A, synchronizer 430; paragraph [062], lines 1-2)."

Dependent claims 7, 19, and 31 recite in essence: "the information module further comprises: an information table to store entries regarding information extracted from a received remote frame (Fig. 4A, information table 460; paragraph [066], lines 2-3); and an information table updater to update the entries (Fig. 4A, information table updater 450; paragraph [066], lines 1-2)."

Dependent claims 8, 20, 32, and 40 recite in essence: "the communication module comprises: a usage evaluator to evaluate network usage to determine relative location of the second network based on an interference list from the network state information (Fig. 5A, usage evaluator 510; paragraph [073], lines 1-2); a channel migration evaluator to evaluate a channel allocation layout (Fig. 5A, channel migration evaluator 520; paragraph [077], line 1); a channel change controller to control a channel change based in the channel allocation layout (Fig. 5A, channel change controller 530; paragraph [080], lines 1-3); and a channel changer to change channel of the local node according to a wireless mode used by the node (Fig. 5A, channel changer 540; paragraph [082], lines 1-3)."

Dependent claims 9, 21, and 33 recite in essence: "the channel migration evaluator evaluates an alternate layout based on a relationship between interference and channel distance (paragraph [078], lines 6-10)."

Dependent claims 10, 22, and 34 recite in essence: "the discovery information includes information on at least node device, node service, and user (paragraph [028], lines 5-6)."

Dependent claims 11, 23, and 35 recite in essence: "the network state information further includes an interference list (paragraph [055], lines 1-6)."

Dependent claims 12, 24, and 36 recite in essence: "the interference list includes at least a network from which the local node receives a beacon or directly receives a remote frame from the remote node (paragraph [075], lines 1-3)."

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 25-36 stand rejected under 35 U.S.C. §101.
2. Claims 25-36 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.
3. Claims 1, 3-8, and 10-13, 15-20, and 22, 24-25, 27-32, 34, and 36-40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 2004/0174829 issued to Ayyagari ("Ayyagari") in view of U.S. Publication No. 2004/0174829 issued to Andric et al. ("Andric").
4. Claims 2, 9, 14, 21, 26, and 33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ayyagari, and Andric as applied to claims 1, 13, 25, and 37, and further in view of U.S. Publication No. 2005/0073979 issued to Barber et al. ("Barber").
5. Claims 11, 23, and 35 under 35 U.S.C. §103(a) stand rejected as being unpatentable over Ayyagari, and Andric as applied to claims 1, 13, and 37, and further in view of U.S. Publication No. 2005/0192037 issued to Nanda et al. ("Nanda").

VII. ARGUMENTS

A. Claims 25-36 Are Not Directed to Non-Statutory Subject Matter.

In the Final Office Action, the Examiner rejected claims 25-36 under 35 U.S.C. §101. The Examiner contends that the claimed invention is directed to non-statutory

subject matter (Final Office Action, page 2, paragraph 1). Applicant respectfully disagrees for the following reasons.

First, Claims 25-36 are Beauregard-type claims which recite an article of manufacture that comprises a machine-accessible storage medium. A claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035; MPEP 2106.01.I. Computer programs are often recited as part of a claim. USPTO personnel should determine whether the computer program is being claimed as part of an otherwise statutory manufacture or machine. In such a case, **the claim remains statutory irrespective of the fact that a computer program is included in the claim**. MPEP 2106.01.I (Emphasis added.) Such a Beauregard claim has been determined statutory. *In re Nuijten,* 500 F.3d 1346 (Fed. Cir., 2007) ("It has been the practice for a number of years that a 'Beauregard Claim' of this nature be considered statutory at the USPTO as a product claim."). Accordingly, claims 26-30 are statutory.

Second, paragraph [0104] recites, in part, "[t]he program or code segments can be stored in a processor **or** machine accessible medium **or** transmitted by a computer data signal embodied in a carrier wave, **or** a signal modulated by a carrier, over a transmission medium. The "processor readable or accessible medium" **or** "machine readable or accessible medium" may include any medium that can store, transmit, **or** transfer information. (Emphasis added.) The description provides alternative embodiments. Applicant does not have to claim all of the alternative embodiments. Applicant elects to claim the storage medium which is clearly statutory.

Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §101 be withdrawn.

B. Claims 25-36 Do Not Fail to Comply with the Written Description.

In the Final Office Action, the Examiner rejected claims 25-36 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner contends that claim 25 states "machine-accessible storage medium" which was not described in the specification in such a way as to reasonably convey to one skilled in

the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (Final Office Action, pages 3-4, paragraphs 3-4). Applicant respectfully disagrees for the following reasons.

As discussed above in the 35 U.S.C. §101 rejection, the specification describes alternative embodiments. Claims 25-36 recite a "storage medium". Clearly, one skilled in the art at the time of the invention would understand that a storage medium can store data.

Furthermore, claims should be interpreted consistently with the specification, which provides content for the proper construction of the claims because it explains the nature of the patentee's invention. See *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243,1250, 48 USPQ 2d (BNA) 1117 (Fed. Cir. 1998). MPEP 2111. The article of manufacture and the machine-accessible storage medium claim language is fully supported in the specification. See, for example, paragraphs [0108] – [0109]. The specification provides that examples of the processor readable or machine accessible medium include an electronic circuit, a semiconductor memory device, a read only memory (ROM), a flash memory, an erasable ROM (EROM), a floppy diskette, a compact disk (CD) ROM, an optical disk, a hard disk, etc. It is well known that these media can store data.

In the Final Office Action, the Examiner rejected claims 1, 3-8, and 10-13, 15-20, and 22, 24-25, 27-32, 34, and 36 under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 2004/0174829 issued to Ayyagari ("Ayyagari") in view of U.S. Publication No. 2004/0174829 issued to Andric et al. ("Andric"); claims 2, 9, 14, 21, 26, and 33 under 35 U.S.C. §103(a) as being unpatentable over Ayyagari, and Andric as applied to claims 1, 13, 25, and 37, and further in view of U.S. Publication No. 2005/0073979 issued to Barber et al. ("Barber"); and claims 11, 23, and 35 under 35 U.S.C. §103(a) as being unpatentable over Ayyagari, and Andric as applied to claims 1, 13, and 37, and further in view of U.S. Publication No. 2005/0192037 issued to Nanda et al. ("Nanda");. Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a prima facie case of obviousness.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable

expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP §2143, p. 2100-126 to 2100-130 (8th Ed., Rev. 5, August 2006).* Applicant respectfully submits that there is no suggestion or motivation to combine their teachings, and thus no *prima facie* case of obviousness has been established.

Furthermore, the Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), stated: "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." MPEP 2141. In *KSR International Co. vs. Teleflex, Inc.*, 127 S.Ct. 1727 (2007) (Kennedy, J.), the Court explained that "[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." The Court further required that an explicit analysis for this reason must be made. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR 127 S.Ct.* at 1741, quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). In the instant case, Applicant respectfully submits that there are significant differences between the cited references and the claimed invention and there is no apparent reason to combine the known elements in the manner as claimed, and thus no *prima facie* case of obviousness has been established.

C. Claims 1, 3-8, and 10-13, 15-20, and 22, 24-25, 27-32, 34, and 36-40 Are Not Obvious over Ayyagari in view of Andric.

Ayyagari discloses a centralized network organization and topology discovery in ad-hoc network with central controller. The network in its operational mode consists of host nodes, a designated controller for the network called the Central Coordinator (CCo), and where appropriate, a set of Proxy Coordinators (PCo) to communicate with nodes that cannot directly communicate (in one link) with the CCo, or with other nodes in the

network (Ayyagari, par. [0025]). The CCo periodically initiates a node discovery process. Every known node is allowed to transmit a DISCOVERY_MSG message in a contention free mode, using an allocation (frequencies and time slots) granted by the CCo. The DISCOVERY_MSG can simply contain the MAC address/TEI (Temporary Equipment Identifier) of the source device, or it may also contain the Frame number and time slots for future contention periods that follow the end of the Discovery interval (Ayyagari, par. [0055], lines 1-9). Activity Indicator is an optional parameter indicating how busy a device is, in terms of its duty cycle (Ayyagari, par. [0064], lines 12).

Andric discloses a protocol and structure for mobile nodes in a self-organizing communication network. A node includes a receiver 430, processor 440, router 450, storage 470, and transmitter 480 (Andric, paragraph [0212]; Figure 75). If a cluster head receives the NETWORK TOPOLOGY UPDATE message and determines that a different parent cluster is linked to the cluster, it changes the parent cluster as indicated in the message (Andric, paragraph [0128]).

Ayyagari and Andric, taken alone or in any combination, do not disclose or render obvious, at least one of: (1) a frame module to process a frame containing information regarding a local node in a first network, the information including discovery information and network state information, the discovery information being represented in a common description, the network state information including at least one of network configuration, network status, and network history; (2) an information module coupled to the frame module to manage the information; (3) a communication module coupled to the frame module and the information module to manage communication between the local node and a remote node in a second network using the information.

First, Ayyagari merely discloses the START_DISCOVERY_MSG transmitted by the CCo to indicate the beginning of a DISCOVERY period (Ayyagari, par. [0060]) and the CCO_NETCONFIG_MSG transmitted by a new device that has been selected as the new CCo or by the current CCo itself after network organization is completed (Ayyagari, par. [0070]), not a frame module to process a frame containing information regarding a local node in a first network, the information including discovery information and network state information. As discussed above, the information in the DISCOVERY_MSG and the CCO_NETCONFIG_MSG are not contained within a single frame. Thus, there is no

teaching of "a frame containing information… including discovery information and network state information."

Second, Ayyagari merely discloses every other node listening to DISCOVER_MSG transmissions and updating its DISCOVERED_NODE_LIST (Ayyagari, par. [0055]) and the topology table of the CCo being a tabulation of the DISCOVERED_NODE_LISTS for all nodes (Ayyagari, par. [0076]), not an information module to manage the information, as recited in claim 1. As discussed above, given that the Examiner alleges the network information is contained in the CCO_NETCONFIG_MSG, CCo cannot be the information module since the topology table does not account for the CCO_NETCONFIG_MSG information.

Furthermore, the Examiner interprets the CCo as the frame module and as the information module (Final Office Action, pages 5-6, paragraph 7, "see paragraph 25 central coordinator (Cco)" on page 5, and "implicitly CCo comprises a communication module for communicating with other nodes" on page 6). However, the CCo cannot be both frame module and information module because they perform different functions as discussed above.

In the Final Office Action, the Examiner contends that a frame module is the central coordinator (Cco) while an information module is the topology table (Final Office Action, page 19, lines 12-14). Applicant respectfully disagrees. The topology table is merely a tabulation table of the discovered node lists of all nodes that have associated with the network (Ayyagari, paragraph [0076], lines 1-5). Accordingly, it cannot manage the information which includes discovery information and network state information where the network state information includes at least one of network configuration, network status, and network history. A list of discovered nodes does not correspond to the network configuration, status, and history.

Third, Ayyagari merely discloses viable interconnections between nodes relating to two illustrative organizations, such as interconnection 40 between C and D (Ayyagari, par. [0043], lines 7-10; Fig. 1, ref. 40), not a communication module coupled to the frame module and the information module to manage communication using the information, as recited in claim 1. A viable interconnection is a communication link that may be created between nodes C and D. In contrast, communication module 230 manages communication between the IW node and a remote node in a second IW network and receives the IW

information from the information module 220 (See, for example, Specifications, par. [0035]). A communication link is merely a connection to connect two nodes. It does not have the ability to manage the communication between the two nodes.

Regarding Andric, the Examiner contends that Andric discloses a communication module, citing Andric, paragraph [0212], and state information including at least one of network configuration, network status, and network history, citing Andric, paragraph [0128]. Applicant respectfully disagrees and submits that the cited paragraphs do not provide support for the Examiner's contention for the following reasons.

For ease of reference, the cited paragraphs are copied below.

> "Referring to FIG. 75, a functional block diagram 400 of the internal operation of a node operable for the network of the present invention is shown. The basic functionality received in receiver 430, processor 440, router 450, storage 470, and transmitter 480 of the diagram are applicable to the various types of nodes, including MNs, NN, CH, gateway nodes, and network coordinator nodes, of the network, with variations in control and processing functionality, outlined above, being incorporated. **Incoming messages 410 are first received by message receiver 430**, which then prepares the incoming messages 410 for processing by message processor 440. **Message processor 440 interacts with storage block 470, audio/visual indicator 460, and message router 450 in order to correctly process incoming messages 410**. Node 400 also contains message transmission 480 (receiver) capability that allows nodes 400 to prepare outgoing messages 420 created by either message router 450 or message processor 440. The outgoing messages 420 could include status messages, routed data messages, messages to nodes within communication range of nodes 400, or any similar type of message traffic, again depending upon the type of node at issue." (Andric, paragraph [0212]. *Emphasis added*.).

> "If a cluster head receives the NETWORK TOPOLOGY UPDATE message and determines that a different parent cluster is linked to the cluster, it **changes the parent cluster as indicated in the message**. All nodes within the cluster should memorize its parent cluster, child/lower clusters and the border nodes' NID at this time." (Andric, paragraph [0128]. *Emphasis added*).

As seen from the above, Andric merely discloses a message receiver 430 receives incoming messages 410 and prepares them for processing by message processor 440

(Andric, paragraph [0212]), not a communication module to manage communication between the local node and a remote node in a second network using the information. The receiver 430 merely receives the incoming messages 410. Receiving messages merely accepts the messages. It does not manage communication between the local node and a remote node. Furthermore, the message processor 440 merely interacts with storage block 470, audio/visual indicator 460, and message router 450 to correctly process incoming messages 410. It does not manage the communication using the information. The storage block 470, or the audio/visual indicator 460, or the message router 450 does not contain the information including discovery information and network state information.

Furthermore, Andric merely discloses a network topology update message (Andric, paragraph [0128]), not the network state information including at least one of network configuration, network status, and network history. When a cluster head receives this message, it merely changes the parent cluster as indicated in the message. The network topology update therefore only refers to the parent cluster. It is not related to the network configuration, network status, and network history.

In the Final Office Action, the Examiner contends that "a communication module to manage communication between the local node and a remote node in a second network using the information is taught by Ayyagari, *not* Andric." (Final Office Action, page 20, lines 17-20. *Emphasis added.*) However, right before that statement, the Examiner argues that Andric in the same or similar field of endeavor teaches a communication module and state information (Final Office Action, page 20, lines 15-17; page 6, lines 17-19). It appears that the Examiner's arguments are self contradictory. If Ayyagari indeed teaches a communication module, and not Andric, then what is the use of Andric? Furthermore, as discussed above, Andric's storage block 470, or the audio/visual indicator 460, or the message router 450 does not contain the information including discovery information and network state information.

D. Claims 2, 9, 14, 21, 26, and 33 Are Not Obvious over Ayyagari and Andric and further in view of Barber.

Ayyagari and Andric are discussed above.

Barber discloses a visitor gateway in a wireless network. The 802.11 MAC defines special functional behavior for fragmentation of packets, medium reservation via RTS/CTS

(request-to-send/clear-to-send) polling interaction, and point coordination (for time-bounded services) (Barber, par. [0012]).

Ayyagari, Andric, and Barber, taken alone or in any combination, do not disclose or render obvious, at least one of: (1) – (3) as above; (4) a frame builder to build the frame containing the information; (5) a frame transmitter coupled to the frame builder to transmit the frame to another local node in the first network or the remote node in the second network; (6) a frame poller coupled to the frame transmitter to provide a polling frame requesting for information of the remote node; and (7) a frame receiver to receive another frame from another local node in the first network or to receive a remote frame from the remote node

Ayyagari merely discloses the DISCOVERY_MSG broadcast by the nodes and CCO_NETCONFIG_MSG transmitted by the CCo or a new device selected as CCo (Ayyagari, par. [0057-0064]; par. [0070]), not a frame builder to build the frame containing the information. As above, Ayyagari does not disclose a frame containing information… including discovery information and network state information, let alone, a frame builder to build the frame, a frame transmitter to transmit the frame, or a frame receiver to receive another frame, as recited in claims 2, 14, and 26.

In addition, with respect to the frame transmitter, Ayyagari merely discloses the BEACON_MSG being transmitted by the CCo periodically (Ayyagari, par. [0058]). The BEACON_MSG carries the identity of the transmitting device and may include the START_DISCOVERY_MSG (Ayyagari, par. [0058-0060]). Since the BEACON_MSG does not include the network state information, allegedly the CCO_NETCONFIG_MSG, or the discovery information, allegedly the DISCOVERY_MSG, the BEACON_MSG cannot be the frame transmitted by the frame transmitter. Moreover, the Examiner alleges that the CCo is the frame transmitter (Final Office Action, page 10, line 3). Previously, the Examiner alleged that the CCo was also the frame module and the information module. Each of these modules performs different functions such that they cannot all be the same module.

As discussed above, Ayyagari and Andric do not disclose or render obvious elements (1) – (3) as above. Accordingly, a combination of Ayyagari and Andric with any other references in rejecting claims 2, 9, 14, 21, 26, and 33 is improper.

Furthermore, Barber merely discloses that MAC defines special functional behavior for fragmentation of packets, medium reservation via RTS/CTS polling interaction (Barber, par. [0012], lines 17-20), or tunnel 1204 packages up traffic between visitor clients (Barber, par. [0103], lines 6-7), not a frame poller to provide a polling frame requesting for information of the remote node, or a frame transmitter to transmit the frame to another local node in the first network or the remote node in the second network, or a frame receiver to receive another frame from another local node in the first network or to receive a remote frame from the remote node.

In the Final Office Action, the Examiner contends that the background of Barber teaches the use of polling interaction (Final Office Action, page 10, second paragraph). However, the background merely discloses RTS/CTS (request-to-send/clear-to-send) polling interaction (Barber, paragraph [0012]). The RTS/CTS protocol is merely used to reduce frame collisions. The RTS (request to send) frame is used to initiate a data transmission. The CTS (Clear to Send) is a reply to the RTS from the destination. The RTS/CTS protocol therefore merely involves two nodes that wish to transmit and receive frames. It does not involve requesting discovery information. Regarding the tunnel, it merely transports traffic to a firewall to allow a visitor client to access the Internet (Barber, par. [0103], lines 7-10). It does not transmit or receive a frame as recited in claims 2, 14, and 26. In fact, Barber specifically discloses that the tunnel does not send or receive traffic to or from the LAN (Barber, par. [0103], lines 10-11). Accordingly, Barber teaches away from the invention because traffic is not sent or received to or from the LAN.

In the Final Office Action, the Examiner contends that Barber teaches the use of polling interaction, citing paragraphs [0012] and [0103] (Final Office Action, page 22, lines 9-11). Applicant submits that the cited paragraphs do not support the Examiner's arguments. For ease of reference, the cited paragraphs are copied below.

> "The 802.11 basic medium access control (MAC) behavior allows interoperability between compatible physical layer protocols through the use of the CSMA/CA (carrier sense multiple access with a collision avoidance) protocol and a random back-off time following a busy medium condition. In addition, directed traffic can use an immediate positive acknowledgement (ACK frame) protocol, wherein a retransmission is scheduled by the sender if no positive acknowledgement is received. The 802.11 CSMA/CA protocol is designed to reduce the collision probability between multiple stations accessing the medium at the point

> in time where collisions are most likely occur. The highest probability of a collision occurs just after the medium becomes free, following a busy medium. This is because multiple stations would have been waiting for the medium to become available again. Therefore, a random back-off arrangement is used to resolve medium contention conflicts. In addition, the 802.11 MAC defines special functional behavior for fragmentation of packets, medium reservation via **RTS/CTS (request-to-send/clear-to-send) polling interaction**, and point coordination (for time-bounded services)." (Barber, paragraph [0012]. *Emphasis added.*)
>
> "As illustrated in FIG. 12, a variety of clients 1202 connect to services supported by a CCC 1200 via an access point 1203. A visitor gateway is implemented using a tunnel 1204 and client-to-CCC tunneling is implemented using a tunnel 1210. Other tunnels might be implemented as well. **Tunnel 1204 packages up traffic between visitor clients**, such as client 1202(1), **and transports it to a firewall 1206**, which connects to a visitor gateway machine 1208 at a "demilitarized zone" or "DMZ", **to allow for a visitor client to access the Internet 1220, but not send or receive traffic to or from the LAN**. Traffic from authorized clients can travel onto the LAN. The status of a particular client can be determined at the CCC using data maintained there. Since the CCC performs the access control functions, it does not necessarily need to rely on the access points to determine which clients should be tunnelled and which clients should be allowed onto the LAN." (Barber, paragraph [0012]. *Emphasis added.*)

As seen from the above excerpt, Barber merely discloses RTS/CTS polling interaction and packaging up traffic between visitor clients. As discussed above, neither RTS/CTS polling interaction nor packaging up traffic between visitor clients is related to polling frame requesting for information of the remote node, or transmitting the frame to another local node in the first network or the remote node in the second network, or receiving another frame from another local node in the first network or to receive a remote frame from the remote node. Packaging traffic merely packages the traffic packets. It does not transmit or receive. Barber merely discloses transporting traffic to a firewall, but only to allow a visitor client to access the Internet, not to transmit or receive a frame. Furthermore, as discussed above, Barber specifically teaches "not send or receive traffic to or from the LAN." Accordingly, Barber teaches away the claimed invention.

E. Claims 11, 23, and 35 Are Not Obvious over Ayyagari and Andric and further in view of Nanda.

Ayyagari and Andric are discussed above.

Nanda discloses distributed hierarchical scheduling in an AD hoc network. A message decoder decodes one or more first interference lists from coordination messages contained in the one or more received signals from respective one or more remote devices (Nanda, paragraphs [0010], [0013]). An interference list field comprises a list of interfering remote stations, a transmit allocation field comprising one or more allocations for transmission by a child remote station on a shared medium, and a receive allocation field comprising one or more allocations for receiving by a child remote station on a shared medium (Nanda, paragraph [0014]). A coordination message may include system information, the superframe period and start time, a contention period (if applicable), and an interference list (Nanda, paragraph [0065]). An interference list may contain a list of identifiers, each identifier associated with a remote device such as a BMS (Nanda, paragraph [0071]).

As discussed above, Ayyagari and Andric do not disclose or render obvious elements (1) – (3) as above. Accordingly, a combination of Ayyagari and Andric with any other references in rejecting claims 11, 23, and 35 is improper.

Furthermore, Nanda merely discloses a message decoder decoding one or more first interference lists from coordination messages contained in the one or more received signals from respective one or more remote devices (Nanda, paragraphs [0010], [0013]). The interference list is not included as part of the network state information

The Examiner failed to establish a prima facie case of obviousness and failed to show there is teaching, suggestion, or motivation to combine the references. When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to: (A) The claimed invention must be considered as a whole; (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and (D) Reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Col, Inc.,* 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986). "When determining the patentability of a claimed invention which combined two known elements,

'the question is whether there is something in the prior art as a whole suggest the desirability, and thus the obviousness, of making the combination.'" *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992), 24 USPQ2d 1040; *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ (BNA) 481, 488 (Fed. Cir. 1984). To defeat patentability based on obviousness, the suggestion to make the new product having the claimed characteristics must come from the prior art, not from the hindsight knowledge of the invention. *Interconnect Planning Corp. v. Feil*, 744 F.2d 1132, 1143, 227 USPQ (BNA) 543, 551 (Fed. Cir. 1985). To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the Examiner to show a motivation to combine the references that create the case of obviousness. In other words, the Examiner must show reasons that a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the prior elements from the cited prior references for combination in the manner claimed. *In re Rouffet*, 149 F.3d 1350 (Fed. Cir. 1996), 47 USPQ 2d (BNA) 1453. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or implicitly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973. (Bd.Pat.App.&Inter. 1985). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Furthermore, although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." *In re Mills*, 916 F.2d at 682, 16 USPQ2d at 1432; *In re Fritch*, 972 F.2d 1260 (Fed. Cir. 1992), 23 USPQ2d 1780.

Moreover, the Examiner failed to establish the factual inquires in the three-pronged test as required by the *Graham* factual inquires. There are significant differences between the cited references and the claimed invention as discussed above. Furthermore, the Examiner has not made an explicit analysis on the apparent reason to combine the known elements in the fashion in the claimed invention. Accordingly, there is no apparent reason to combine the teachings of Ayyagari, Andric, Barber and Nanda in any combination.

In the present invention, the cited references do not expressly or implicitly disclose any of the above elements. In addition, the Examiner failed to present a convincing line of reasoning as to why a combination of Ayyagari, Andric, Barber and Nanda is an obvious application of inter-wireless interactions using user discovery for AD-HOC environments, or an explicit analysis on the apparent reason to combine Ayyagari, Andric, Barber and Nanda in the manner as claimed.

Therefore, Applicant believes that independent claims 1, 13, 25, and 37 and their respective dependent claims are distinguishable over the cited prior art references.

VIII. CONCLUSION

Applicant respectfully requests that the Board enter a decision overturning the Examiner's rejection of all pending claims, and holding that the claims satisfy the requirements of 35 U.S.C. §101, 35 U.S.C. §102(e) and 35 U.S.C. §103(a).

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP

Dated: November 11, 2009

By / THINH V. NGUYEN /
Thinh V. Nguyen
Reg. No. 42,034

1279 Oakmead Parkway
Sunnyvale, CA 94085-4040
(714) 557-3800

IX. CLAIM APPENDIX

The claims of the present application which are involved in this appeal are as follows:

1. (previously presented) An apparatus comprising:

a frame module to process a frame containing information regarding a local node in a first network, the information including discovery information and network state information, the discovery information being represented in a common description, the network state information including at least one of network configuration, network status, and network history;

an information module coupled to the frame module to manage the information; and

a communication module coupled to the frame module and the information module to manage communication between the local node and a remote node in a second network using the information.

2. (original) The apparatus of claim 1 wherein the frame module comprises:

a frame builder to build the frame containing the information;

a frame transmitter coupled to the frame builder to transmit the frame to another local node in the first network or the remote node in the second network;

a frame poller coupled to the frame transmitter to provide a polling frame requesting for information of the remote node; and

a frame receiver to receive another frame from another local node in the first network or to receive a remote frame from the remote node.

3. (original) The apparatus of claim 2 wherein the frame receiver forwards the received remote frame to the communication module if the received remote frame is related to the network communication.

4. (original) The apparatus of claim 2 wherein the frame receiver forwards the received remote frame to the information module of the local node, to another local node in

the first network, or to another remote node if the received remote frame is related to information exchange and meets an acceptance condition.

5. (original) The apparatus of claim 4 wherein the acceptance condition is based on a forwarding number and propagation parameters including a propagation list and a propagation type, the forwarding number and the propagation type being contained in the frame..

6. (original) The apparatus of claim 1 wherein the information module comprises:

a collector to collect the information;

a translator coupled to the collector to translate the discovery information into the common description;

a node selector coupled to the collector to determine if the local node participates in the communication based on the network state information of the local node and other network state information from another local node in the first network; and

a synchronizer to synchronize the collected information with other information. from other local nodes in the first network.

7. (original) The apparatus of claim 6 wherein the information module further comprises:

an information table to store entries regarding information extracted from a received remote frame; and

an information table updater to update the entries.

8. (original) The apparatus of claim 1 wherein the communication module comprises:

a usage evaluator to evaluate network usage to determine relative location of the second network based on an interference list from the network state information;

a channel migration evaluator to evaluate a channel allocation layout;

a channel change controller to control a channel change based in the channel allocation layout; and

a channel changer to change channel of the local node according to a wireless mode used by the node.

9. (original) The apparatus of claim 8 wherein the channel migration evaluator evaluates an alternate layout based on a relationship between interference and channel distance.

10. (original) The apparatus of claim 1 wherein the discovery information includes information on at least node device, node service, and user.

11. (previously presented) The apparatus of claim 1 wherein the network state information further includes an interference list.

12. (original) The apparatus of claim 11 wherein the interference list includes at least a network from which the local node receives a beacon or directly receives a remote frame from the remote node.

13. (previously presented) A method comprising:

processing a frame containing information regarding a local node in a first network, the information including discovery information and network state information, the discovery information being represented in a common description, the network state information including at least one of network configuration, network status, and network history;

managing the information; and

managing communication between the local node and a remote node in a second network using the information.

14. (original) The method of claim 13 wherein processing the frame comprises:

building the frame containing the information;

transmitting the frame to another local node in the first network or the remote node in the second network;

providing a polling frame requesting for information of the remote node; and

receiving another frame from another local node in the first network or a remote frame from the remote node.

15. (original) The method of claim 14 wherein receiving comprises forwarding the received remote frame to the communication module if the received remote frame is related to the network communication.

16. (original) The method of claim 14 wherein receiving comprises forwarding the received remote frame to the information module of the local node, to another local node in the first network, or to another remote node if the received remote frame is related to information exchange and meets an acceptance condition.

17. (original) The method of claim 16 wherein the acceptance condition is based on a forwarding number and propagation parameters including a propagation list and a propagation type, the forwarding number and the propagation type being contained in the frame..

18. (original) The method of claim 13 wherein managing the information comprises:

collecting the information;

translating the discovery information into the common description;

determining if the local node participates in the communication based on the network state information of the local node and other network state information from another local node in the first network; and

synchronizing the collected information with other information. from other local nodes in the first network.

19. (original) The method of claim 18 wherein managing the information further comprises:

storing entries regarding information extracted from a received remote frame; and

updating the entries.

20. (original) The method of claim 13 wherein managing the communication comprises:

evaluating network usage to determine relative location of the second network based on an interference list from the network state information;

evaluating a channel allocation layout;

controlling a channel change based in the channel allocation layout; and

changing channel of the local node according to a wireless mode used by the node.

21. (original) The method of claim 20 wherein evaluating a channel allocation layout comprises evaluating an alternate layout based on a relationship between interference and channel distance.

22. (original) The method of claim 13 wherein the discovery information includes information on at least node device, node service, and user.

23. (previously presented) The method of claim 13 wherein the network state information further includes an interference list.

24. (original) The method of claim 23 wherein the interference list includes at least a network from which the local node receives a beacon or directly receives a remote frame from the remote node.

25. (previously presented) An article of manufacture comprising:

a machine-accessible storage medium including data that, when accessed by a machine, causes the machine to perform operations comprising:

processing a frame containing information regarding a local node in a first network, the information including discovery information and network state information, the discovery information being represented in a common description, the network state information including at least one of network configuration, network status, and network history;

managing the information; and

managing communication between the local node and a remote node in a second network using the information.

26. (original) The article of manufacture of claim 25 wherein the data causing the machine to perform processing the frame comprises data that, when accessed by the machine, causes the machine to perform operations comprising:

building the frame containing the information;

transmitting the frame to another local node in the first network or the remote node in the second network;

providing a polling frame requesting for information of the remote node; and

receiving another frame from another local node in the first network or a remote frame from the remote node.

27. (original) The article of manufacture of claim 26 wherein the data causing the machine to perform receiving comprises data that, when accessed by the machine, causes the machine to perform operations comprising forwarding the received remote frame to the communication module if the received remote frame is related to the network communication.

28. (original) The article of manufacture of claim 26 wherein the data causing the machine to perform receiving comprises data that, when accessed by the machine, causes the machine to perform operations comprising forwarding the received remote frame to the information module of the local node, to another local node in the first network, or to another remote node if the received remote frame is related to information exchange and meets an acceptance condition.

29. (original) The article of manufacture of claim 28 wherein the acceptance condition is based on a forwarding number and propagation parameters including a propagation list and a propagation type, the forwarding number and the propagation type being contained in the frame..

30. (original) The article of manufacture of claim 25 wherein the data causing the machine to perform managing the information comprises data that, when accessed by the machine, causes the machine to perform operations comprising:

collecting the information;

translating the discovery information into the common description;

determining if the local node participates in the communication based on the network state information of the local node and other network state information from another local node in the first network; and

synchronizing the collected information with other information. from other local nodes in the first network.

31. (original) The article of manufacture of claim 30 wherein the data causing the machine to perform managing the information further comprises data that, when accessed by the machine, causes the machine to perform operations comprising:

storing entries regarding information extracted from a received remote frame; and

updating the entries.

32. (original) The article of manufacture of claim 25 wherein the data causing the machine to perform managing the communication comprises data that, when accessed by the machine, causes the machine to perform operations comprising:

evaluating network usage to determine relative location of the second network based on an interference list from the network state information;

evaluating a channel allocation layout;

controlling a channel change based in the channel allocation layout; and

changing channel of the local node according to a wireless mode used by the node.

33. (original) The article of manufacture of claim 32 wherein the data causing the machine to perform evaluating a channel allocation layout comprises data that, when accessed by the machine, causes the machine to perform operations comprising evaluating an alternate layout based on a relationship between interference and channel distance.

34. (original) The article of manufacture of claim 25 wherein the discovery information includes information on at least node device, node service, and user.

35. (previously presented) The article of manufacture of claim 25 wherein the network state information further includes an interference list.

36. (original) The article of manufacture of claim 35 wherein the interference list includes at least a network from which the local node receives a beacon or directly receives a remote frame from the remote node.

37. (previously presented) An apparatus comprising:

means for processing a frame containing information regarding a local node in a first network, the information including discovery information and network state information, the discovery information being represented in a common description, the network state information including at least one of network configuration, network status, and network history;

means for managing the information; and

means for managing communication between the local node and a remote node in a second network using the information.

38. (original) The apparatus of claim 37 wherein the means for processing the frame comprises:

means for building the frame containing the information;

means for transmitting the frame to another local node in the first network or the remote node in the second network;

means for providing a polling frame requesting for information of the remote node; and

means for receiving another frame from another local node in the first network or a remote frame from the remote node.

39. (original) The apparatus of claim 37 wherein the means for managing the information comprises:

means for collecting the information;

means for translating the discovery information into the common description;

means for determining if the local node participates in the communication based on the network state information of the local node and other network state information from another local node in the first network; and

means for synchronizing the collected information with other information. from other local nodes in the first network.

40. (original) The apparatus of claim 37 wherein the means for managing the communication comprises:

means for evaluating network usage to determine relative location of the second network based on an interference list from the network state information;

means for evaluating a channel allocation layout;

means for controlling a channel change based in the channel allocation layout; and

means for changing channel of the local node according to a wireless mode used by the node.

X. EVIDENCE APPENDIX

None

XI. RELATED PROCEEDINGS APPENDIX

None